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NTEP *Comings and Goings*

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Dear Kevin,

In this issue of NTEP *Comings and Goings* is an update of our newest trial, as well as a request for your help in planning next years' trial. In addition, see our write-up about Dr. Pete Landschoot and his NTEP trials at Penn State. Finally, please read installment two of our series on the ins and outs of NTEP data collection.

If we can help you with anything or answer any of your questions, please feel free to contact us (301-504-5125, kmorris@ntep.org).

In This Issue

New perennial ryegrass trial is sent to university cooperators

The Brinkman's Traffic Simulator will be utilized to simulate fall football damage at four locations evaluating the 2010 National Perennial Ryegrass Test

Many new perennial ryegrass experimental selections are being established at sites around the U.S. Eighty-eight entries, including seventy-eight experimentals and seven standards (well-known entries for comparison purposes), were sent to twenty-three locations in late August/September 2010. A list entries and sponsors and trial locations, as well as other information, can be found in the NTEP News Room. This trial will be evaluated for the next four years. The first data will be available on the NTEP web site in spring 2012.

Insights into NTEP data collection (part two of a series)

In part one of this series, we explored how NTEP develops its tests and testing parameters, organizes and prepares the entries, provides the entries to cooperators, and how the trials are planted.

In this installment, we discuss NTEP procedures for trial maintenance, applying specific stresses or managing to encourage stress.

Trial maintenance

Statistical research funded by NTEP has shown that trial maintenance levels (i.e. the amount of fertilizer and water applied to a trial, the mowing height used, etc.) have a significant impact on cultivar performance. Therefore, NTEP spends a considerable amount of time trying to determine appropriate and important levels of maintenance to apply to its trials.

Since requirements for fertilizer, water, mowing, disease protection, etc. vary by species, NTEP must develop management schemes that are realistic for each species, as well as align with users expectations. For instance, fineleaf fescues are low fertilizer-use grasses, in comparison to perennial ryegrass. A low maintenance level to perennial ryegrass may be a high maintenance level to

This trial is unique in that NTEP has chosen to strongly emphasize the evaluation of several important traits, in addition to its standard evaluations for color, density, texture and disease. Trait-Specific Testing of drought at two locations, in the more humid east (Virginia) and drier west (Utah), as well as tolerance of saline irrigation in the field (Colorado) and of many salinity levels in the greenhouse, will show the entries' tolerance to different drought and irrigation scenarios. Locations (four) evaluating tolerance of simulated football games, overseeding of golf course fairways (three locations) and grey leaf spot (two locations), a devestating disease of perennial ryegrass, round out the trait-specific tests (also called ancillary tests). Standard trials at fourteen locations will collect data on color, density, disease and other characteristics. The standard trials will be managed using one of the following protocols: golf course fairway, athletic field or home lawn-like maintenance. In addition to the links above, more detailed information on this trial can be found here.

Endophyte-enhanced ryegrass repels insects (plot on right)

Perennial ryegrass is often used on athletic fields

Grey leaf spot can severely damage perennial ryegrass

NTEP releases final summary of perennial ryegrass trial

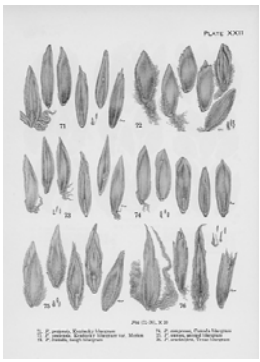
With our newest perennial ryegrass trial just organized and planted, it was time for NTEP to compile the four years of data collected on our recently completed 2004 trial. A final report, summarizing 2005-2008 data, is now available on our web site.

Turf quality data can be located on trials managed under three different management levels, 'A' (golf course fairway), 'B' (athletic field) or 'C' (home lawn), or under simulated athletic field traffic at several locations.

In addition, quality data is organized and analyzed by geographical regions. Data on color, texture, density, diseases and other characteristics is also available from various locations. If you are interested in data from just your state, go to our map.

If you have any questions about interpreting these data, please contact us by email or phone (301-504-5125).

We need your help with our new Kentucky bluegrass test!



NTEP is planning a new national Kentucky bluegrass test, to be established in fall 2011 at multiple locations across the U.S. However, to ensure that we are meeting the needs of our customers, we want your thoughts on how the trial should be structured, the tests that should be conducted and other details.

In short, we want to know what types of information you need to make more informed choices on Kentucky bluegrass cultivars. Please go to our web site and click on the link, or go directly to the survey.

Thanks for your help!

NTEP Trial location spotlight: State College, PA

fineleaf fescue. NTEP must adjust its trial maintenance for both species to meet this reality. In addition, the situations and locations where perennial ryegrass can be utilized vary considerably from fineleaf fescue. For instance, perennial ryegrass is used extensively in the U.S. on athletic fields, because of its wear tolerance and ability to germinate and establish quickly. Fineleaf fescues are not utilized on athletic fields in the U.S., but are used in places where ryegrasses will not perform well, such as shaded areas, roadsides, and infrequently mowed areas.

When NTEP develops the management program(s) for a trial, it addresses the most practical uses for the species, as well as potential uses. For instance, increased interest in the use of Kentucky bluegrass on golf course fairways prompted NTEP to develop a management protocol for our trials that mimic needs of a fairway. Ky. bluegrass trial locations are typically also managed to mimic either an athletic field or good home lawn. Use of these different management levels allows plant breeders to develop cultivars that perform exceptionally well under a specific management regime, as well as providing customers with the best grass for a particular situation.

Encouraging stress

To identify grasses that resist diseases, insects, or drought, perform better under wear, etc., these grasses must be placed under a stress, or a group of stresses. Some years or in some locations, a problem stress occurs naturally. Often, however, a stress needs to be imposed or encouraged. NTEP uses both of these scenarios to produce data on turfgrass response to various stresses.

A preferred method to encourage stresses is to plant a trial in a naturally stressful environment or situation. For instance, we have seashore paspalum planted in Fayetteville, Arkansas, a location that has already provided some much needed winter kill data.

A stressful situation can impose certain stresses, like the bentgrass trials at Bethpage State Park, New York (see picture below), where pesticide use is restricted.

Tall fescue cultivars, shown here in the Penn State trial, have improved color, density and texture.

Some fineleaf fescues show damage from patch diseases

In its continuing efforts to produce high quality data, NTEP visits its test locations on a regular basis. Recently, Kevin Morris visited the main campus of Penn State University in State College, PA.

The NTEP turfgrass trials at Penn State are located at the Joseph Valentine Research Center, on north side of campus. Dr. Peter Landschoot, turfgrass extension specialist and pathologist, is the cooperator on these and many other previous NTEP trials.

The research center features many flat or slightly sloped areas that are well suited for turfgrass research. A good staff mix of permanent and student employees maintain the trials, with direction from Dr. Landschoot. Trial plots are typically 4' x 6' or 5' x 5' in size, with plot borders normally maintained by marking the corners only.

Current NTEP tests evaluated at the center include Ky. bluegrass, tall fescue, fineleaf fescue, bentgrass putting green, bentgrass fairway/tee and perennial ryegrass. Kentucky bluegrass is the predominant species used in Pennsylvania, because of its utility on home lawns, athletic fields, and in some places on the golf course. Perennial ryegrass is used in conjunction with bluegrass on athletic fields, and also traditionally on golf courses. Our new perennial ryegrass trial, just established this fall, will be evaluated at Penn State under simulated athletic field traffic (see article above).

Dr. Landschoot feels that the newest tall fescue cultivars can almost match Ky. bluegrass in texture, color and density, while generally requiring less fertilizer. Fertilizer inputs on turf is under more scrutiny in PA as much of the state is located in the Chesapeake Bay watershed. As a result of President Obama's Executive Order, the Environmental Protection Agency (EPA) and state guidelines are moving closer to restricting fertilizer use on turf areas in the Chesapeake Bay watershed (see Guidelines for federal lands - Sec. 5 Turf management). Because of tall

Note the damage from disease and weeds on the plot on the left

Occasionally, a single location can naturally impose several stresses on a consistent basis. Raleigh, NC sits firmly in the Transition Zone, the region where both warm-season and cool-season grasses are not particularly well adapted. Ky. bluegrass in Raleigh suffers from heat stress, as well as various summer diseases. Summer patch is a major disease problem on bluegrass which is not often seen in trials. A site like Raleigh, NC is key for collecting consistent data on summer patch.

Summer patch damage at N.C. State in Raleigh

Other situations where NTEP establishes tests include golf course fairways (to measure overseeding performance), golf course putting greens and shaded sites.

Applying stress

Sometimes, the stresses that turfgrasses will encounter when planted in the real world do not occur naturally, do not occur regularly or do not occur uniformly in trials. In these instances, NTEP and its cooperators must apply the stress to be certain that the grasses are tested adequately. Things like drought, traffic, saline irrigation tolerance and particular diiseases can be imposed in the field or greenhouse, under controlled conditions.

For instance, drought can be simulated by utilizing a rainout shelter like the one shown below at Logan, UT.

A shelter like this one on wheels is connected to a weather station that causes the facility to close if measurable rainfall occurs. We are now using rainout shelters in Ithaca, NY and Fayetteville, AR for our cool-season drought trial. We are also able to impose

fescue's lower fertilizer requirement, as well as its drought and heat tolerance, Dr. Landschoot feels tall fescue should be planted more in PA. There are questions about the use of tall fescue on athletic fields in PA, although turf managers in surrounding states, such as Maryland and New Jersey, maintain very acceptable tall fescue fields.

Dr. Landschoot also likes the use of fineleaf fescues on home lawns and low maintenance/no-mow areas, such as golf course roughs or out-of-play areas. He would limit fine fescue use on lawns to the northern tier of PA, and the hard fescues have generally performed the best at State College. The fine fescue cultivars are much improved over the last twenty years, and he feels they deserve consideration because of their low fertility requirements.

Dr. Pete Landschoot inspects the 2008 National Bentgrass Putting Green Test at State College, PA

Creeping bentgrass is the grass of choice on putting greens in much of the U.S. and Pennsylvania is no exception. Bentgrasses are also used on golf course fairways and tees in some locations. Penn State trials are testing cultivars in both of these situations. On the day of the site visit, the entries Alpha, MVS-AP101, SRP-1GMC, V-8 and PST-OJO were the best looking cultivars in the putting green trial. The velvet bentgrass cultivars, as a group, have not performed well to date. The trial is maintained at a 0.125" mowing height with 2 lbs. of nitrogen/1000 sq. ft. applied annually. Overall, the trials at Penn State are in excellent condition and are providing valuable data for Pennsylvania and the mid-Atlantic region.

The 2005 NTEP Ky. bluegrass trial is still in excellent condition after five years in State College, PA

Thanks for reading again, in this issue about what is happening at NTEP. If you have any questions, comments or suggestions, please feel free to contact me at 301-504-5125 or kmorris@ntep.org.

Sincerely,

drought in the drier, western U.S. by simply reducing irrigation levels (since droughts are a regular occurrence there). For our new perennial ryegrass trials, we are conducting drought tests in the more humid eastern U.S. (using rainout shelters) and the dry, western states (by reducing irrigation).

Data on traffic tolerance is another important trait for our customers. Unfortunately, previous experience testing grasses on in-use athletic fields has seldom delivered uniform results, and hence inaccurate data. Therefore, we must artificially impose traffic on trials, using equipment designed to simulate various types of athletic events.

Equipment like the Brinkman (shown in the ryegrass article above) simulate football or soccer damage as the machine contains cleat-like bolts on a water-filled drum roller. Hence, ripping and tearing are combined with compaction from each pass of the Brinkman. The Cady traffic simulator (below) is a modified Jacobsen GA-30 aerator, with the aeration tines removed and replaced with pieces of rubber tires and cleats. The Cady's approach is more of a piston-like action to damage the turf.

Simulators like the one below (from the University of Nebraska) have golf cart tires to simulate damage on fairways.

Data on salt tolerance may be collected in regions where saline irrigation is available. Data on spring dead spot disease has been gathered in Oklahoma when the disease organism is used to artificially infect the trial. And sod strength (important to sod producers) is gleaned by using specially designed sod stretching equipment. In summary, NTEP will go to any lengths to gather the data our customers desire!

Next month: data collection methodology and technology

Kevin Morris
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